Exercising Pharmacologic Restraint with Intravenous Olanzapine

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Agitation is a challenging symptom to manage in elderly patients with neuropsychiatric impairment, where commonly used agents can confer excessive sedation and worsening confusion. Here, we identified an index case of IV olanzapine administered for management of agitation in an elderly patient, resulting in a dense hypoactive delirium with symptoms of anticholinergic toxicity. This was the first time we observed parenteral olanzapine administration in our hospital, and it raised concerns for patient safety. We highlight a second case of IV olanzapine use in an elderly woman with dementia which raised concerns for patient safety. We highlight a second case of IV olanzapine use in an elderly woman with dementia which raised concerns for patient safety. Here, we identified another case of IV olanzapine administration in our hospital, and it resulted in a dense hypoactive delirium with symptoms of anticholinergic toxicity.

We reviewed the existing literature on the use of IV olanzapine. The majority of this literature comes from ED and ICU settings in the treatment of acute agitation and/or to achieve sedation. To our knowledge, there are no RCTs that have examined the use of IV olanzapine on general medical floors. Further, there are no studies examining IV olanzapine use specifically for patients with dementia or delirium.

A retrospective cohort study by Martel et al evaluated safety and efficacy of IV olanzapine over a 7 month period in an ED setting. The median age of the study population was 38 and neuropsychiatric diagnoses were broad-ranging. 10% of patients required treatment for hypoxia, and rates of respiratory complications were high in patients requiring additional sedation. Of note, the primary goal of olanzapine use in this study was to achieve sedation, which may differ from the goal of antipsychotic use in delirium or dementia management.

A prospective observational study by Cole et al evaluated IV versus IM olanzapine use for acutely agitated patients in the ED with respiratory depression as a primary outcome, which occurred in 3.7% of patients with IV use and 2.0% with IM use. Of note, no formal statistical analysis was done. The authors concluded that IM and IV olanzapine are safe for use in the ED setting.

We met with pharmacy leadership to learn about the process by which an agent is added to the formulary in our hospital and learned that:

1. A physician can make a request. Notably, the request does not specify route of administration (PO vs IM vs IV).
2. The pharmacy itself can make a medication request based on drug use trends, comparison to peer hospital usage, which can then advance through pharmacy internal committees.
3. The pharmacy will review ongoing use of medication and route of administration for a variety of reasons including SafetyNet reports filed by staff following adverse patient events, recurrent need for pharmacy interventions, and FDA warnings. Our pharmacy is currently in the process of reviewing its formulary.

During the early waves of the COVID-19 pandemic, there were shortages of medications typically used in the ICU for sedation and agitation management as these agents were deployed at high rates and above average doses in COVID patients. This led to liberalization of off label use of more atypical sedating agents including IV olanzapine in the ICU setting. We suspect that medical residents gained comfort using this agent in the ICU, which led to more widespread use within the ED and general medical floors as they moved through their various training sites throughout the academic year.

We have submitted a request to initiate a review process with the pharmacy with the goal of creating restrictions and/or electronic order set warnings for the use of IV olanzapine in medically frail, neuropsychiatrically vulnerable adults in non ICU settings. We aim to reduce excessive sedation, anticholinergic burden, and prolonged hospital stays.

References